



WBC  
Docket No.: SUT-9004/DIV  
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Letters Patent of:  
Hideo Sugai et al.

Patent No.: 6,744,211

Issued: June 1, 2004

For: PLASMA DENSITY INFORMATION MEASURING  
METHOD PROBE USED FOR MEASURING PLASMA  
DENSITY INFORMATION, A PLASMA DENSITY  
INFORMATION MEASURING APPARATUS

Certificate  
NOV 22 2004  
of Correction

**REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 CFR 1.323**

MS Post Issue  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted a typographical error which should be corrected.

In the Second Assignee:

At page 1, please correct the second assignee from Nagoya University to President of Nagoya University.

The error was found in the application as filed by applicant. Please charge our Deposit Account No. 18-0013 in the amount of \$100.00 covering the fee set forth in 37 CFR 1.20(a).

The error now sought to be corrected is an inadvertent typographical error the correction of which does not involve new matter or require reexamination.

11/18/2004 NNGUYEN2 00000152 180013 6744211  
01 FC:1811 100.00 DA

30 NOV 2004

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

The Director is hereby authorized to charge any deficiency in the fees filed, asserted to be filed or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Deposit Account No. 18-0013, under Order No. SUT-9004/DIV. A duplicate copy of this paper is enclosed.

Dated: November 17, 2004

Respectfully submitted,

By   
David T. Nikardo

Registration No.: 22,663

Lee Cheng

Registration No.: 40,949

RADER, FISHMAN & GRAUER PLLC

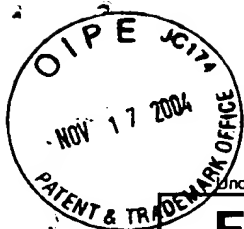
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Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number.

# FEE TRANSMITTAL for FY 2005

Effective 10/01/2004. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 100.00

## Complete if Known

Application Number	Patent#: 6,744,211
Filing Date	Issued: June 1, 2004
First Named Inventor	Hideo Sugai
Examiner Name	J. T. Vu
Art Unit	2821
Attorney Docket No.	SUT-9004/DIV

## METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit Card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit  
Account  
Number

18-0013

Deposit  
Account  
Name

Rader, Fishman & Grauer PLLC

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☐ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

## FEE CALCULATION (continued)

### 3. ADDITIONAL FEES

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet.	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	430	2252	215	Extension for reply within second month	
1253	980	2253	490	Extension for reply within third month	
1254	1,530	2254	765	Extension for reply within fourth month	
1255	2,080	2255	1,040	Extension for reply within fifth month	
1401	340	2401	170	Notice of Appeal	
1402	340	2402	170	Filing a brief in support of an appeal	
1403	300	2403	150	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,370	2453	685	Petition to revive - unintentional	
1501	1,370	2501	685	Utility issue fee (or reissue)	
1502	490	2502	245	Design issue fee	
1503	660	2503	330	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	790	2809	395	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	790	2810	395	For each additional invention to be examined (37CFR 1.129(b))	
1801	790	2801	395	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	
Other fee (specify)				1811 Certificate of correction	100.00

\*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 100.00

## FEE CALCULATION

### 1. BASIC FILING FEE

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1001	790	2001	395	Utility filing fee	
1002	350	2002	175	Design filing fee	
1003	550	2003	275	Plant filing fee	
1004	790	2004	395	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) (\$) 0.00

### 2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	-- =	x	=
Independent Claims	-- =	x	=
Multiple Dependent		=	

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	18	2202	9	Claims in excess of 20
1201	88	2201	44	Independent claims in excess of 3
1203	300	2203	150	Multiple dependent claim, if not paid
1204	88	2204	44	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 0.00

\*\*or number previously paid, if greater; For Reissues, see above

## SUBMITTED BY

Name (Print/Type)	David T. Nikaido/Lee Cheng	Registration No. (Attorney/Agent)	22,663/40,949	Telephone	(202) 955-3750
Signature		Date	November 17, 2004		

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**

PATENT NO. : 6,744,211  
DATED : June 1, 2004  
INVENTOR(S) : Hideo Sugai et al.

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**Second Assignee:**  
**From "Nagoya University" to --President of Nagoya University--.**

MAILING ADDRESS OF SENDER:  
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PATENT NO. 6,744,211

No. of additional copies 1

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US006744211B2

(12) **United States Patent**  
Sugai et al.

(10) Patent No.: **US 6,744,211 B2**  
(45) Date of Patent: **Jun. 1, 2004**

(54) **PLASMA DENSITY INFORMATION MEASURING METHOD, PROBE USED FOR MEASURING PLASMA DENSITY INFORMATION, AND PLASMA DENSITY INFORMATION MEASURING APPARATUS**

(75) Inventors: **Hideo Sugai, Kasugai (JP); Seichi Takasuga, Takarazuka (JP); Naoki Toyoda, Takarazuka (JP)**

(73) Assignees: **Nissin Inc., Hyogo (JP); Nagoya University, Aichi (JP)**

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 420 days.

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\* cited by examiner

(21) Appl. No.: **09/972,944**

(22) Filed: **Oct. 10, 2001**

(65) **Prior Publication Data**

US 2002/0047543 A1 Apr. 25, 2002

## Related U.S. Application Data

(62) Division of application No. 09/357,773, filed on Jul. 21, 1999.

(30) **Foreign Application Priority Data**

Jul. 23, 1998	(JP)	10-208129
Mar. 5, 1999	(JP)	11-058636

(51) Int. Cl.<sup>7</sup> ..... **H01J 7/24**

(52) U.S. Cl. .... **315/111.21; 315/111.81; 156/345**

(58) Field of Search ..... **315/111.21, 111.41, 315/111.51, 111.71, 111.81, 111.91; 118/723 I, 723 IR, 723 AN; 156/345; 324/576**

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## U.S. PATENT DOCUMENTS

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Primary Examiner—Tuyet Vo

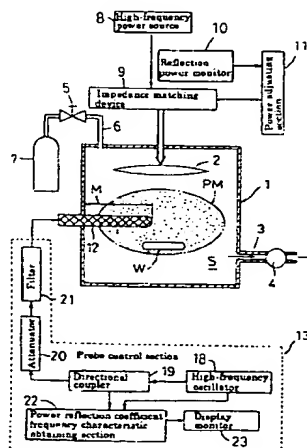
Assistant Examiner—Jimmy T. Vu

(74) Attorney, Agent, or Firm—Rader, Fishman & Grauer PLLC

(57) **ABSTRACT**

A plasma density information measuring method capable of easily measuring the plasma density information over the long term, a probe for measuring the plasma density information, and a plasma density information measuring apparatus are disclosed. A measuring probe is set such that a tip end of a glass tube of the measuring probe is brought into contact with plasma PM to be measured. High-frequency power sent through a coaxial cable is supplied to the plasma PM from a loop antenna through a wall of the tube, and reflection power of the high-frequency power is received by the loop antenna to obtain a counter frequency variation of reflection coefficient of the high-frequency power. In the obtained reflection coefficient, a portion thereof in which the reflection coefficient is largely reduced is a peak at which strong absorption of high-frequency power is caused due to the plasma density. The plasma density can be obtained from the plasma absorption frequency.

**12 Claims, 14 Drawing Sheets**



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